

1. (Original) A polarization system comprising:
  - a first polarity member, the first polarity member being configured to be placed in any of a plurality of orientations to provide a corresponding number of polarities, the first polarity member including a plurality of indicia with each indicium corresponding to a different polarity;
  - a second polarity member, the second polarity member being configured to be placed in any of a plurality of orientations to provide a corresponding number of polarities, the polarities of the second polarity member being respectively complementary to the polarities of the first polarity member, the second polarity member including a plurality of indicia with each indicium corresponding to a different polarity;
  - a first housing, the first housing including a window, the first housing being configured to removably retain the first polarity member such that a single indicium of the first polarity member is visible through the window; and
  - a second housing, the second housing including a window, the second housing being configured to removably retain the second polarity member such that a single indicium of the second polarity member is visible through the window; andwherein, the first polarity member can be mated with the second polarity member when the second polarity member is placed in a polarity complementary to the polarity of the first polarity member.
2. (Original) The polarization system according to claim 1 wherein the first polarity member is a male polarizing key, and the second polarity member is a female polarizing key.
3. (Original) The polarization system according to claim 2 wherein the male polarizing key is hexagonal-shaped, and the female polarizing key is hexagonal-shaped.

4. (Original) The polarization system according to claim 1 wherein the indicia of the first polarity member are numbers, and the indicia of the second polarity member are numbers.

5. (Original) The polarization system according to claim 4 wherein the numbers of the first polarity member correspond to the numbers of the second polarity member such that the polarities of the first polarity member and the respectively complementary polarities of the second polarity member are each designated by a single number.

6. (Original) The polarization system according to claim 1 further comprising:  
a third polarity member including a plurality of indicia with each indicium  
corresponding to a different polarity; and

a fourth polarity member including a plurality of indicia with each indicium  
corresponding to a different polarity, the polarities of the fourth polarity  
member being respectively complementary to the polarities of the third  
polarity member;

wherein the first housing includes a second window, the first housing being  
configured to removably retain the third polarity member such that a single  
indicium of the third polarity member is visible through the second window;  
and

wherein the second housing includes a second window, the second housing being  
configured to removably retain the fourth polarity member such that a single  
indicium of the fourth polarity member is visible through the second window;  
and

wherein, the third polarity member can be mated with the fourth polarity member  
when the fourth polarity member is placed in a polarity complementary to the  
polarity of the third polarity member.

7. (Original) The polarization system according to claim 6 further comprising:  
a fifth polarity member including a plurality of indicia with each indicium  
corresponding to a different polarity; and

a sixth polarity member including a plurality of indicia with each indicium corresponding to a different polarity, the polarities of the sixth polarity member being respectively complementary to the polarities of the fifth polarity member;  
wherein the first housing includes a third window, the first housing being configured to removably retain the fifth polarity member such that a single indicium of the fifth polarity member is visible through the third window; and  
wherein the second housing includes a third window, the second housing being configured to removably retain the sixth polarity member such that a single indicium of the sixth polarity member is visible through the third window; and  
wherein, the fifth polarity member can be mated with the sixth polarity member when the sixth polarity member is placed in a polarity complementary to the polarity of the fifth polarity member.

8. (Original) A polarizing key comprising:  
a base, the base including a resiliently flexible tapered collar;  
an indicia portion, the indicia portion being in spaced relation to the tapered collar, the indicia portion including a plurality of faces, each face having an indicium;  
and  
a polarizing portion, the polarizing portion disposed asymmetrically to the indicia portion such that rotating the polarizing key about a longitudinal axis of the polarizing key changes the orientation of the polarizing portion.

9. (Original) The polarizing key according to claim 8 wherein the polarizing portion is a shaft to provide a male configuration.

10. (Original) The polarizing key according to claim 8 wherein the polarizing portion is a cavity to provide a female configuration.

11. (Original) The polarizing key according to claim 8 wherein the polarizing portion is a shaft.

12. (Original) The polarizing key according to claim 8 wherein the polarizing portion includes a perimeter.

13. (Original) The polarizing key according to claim 12 wherein the perimeter is generally semi-circular.

14. (Original) The polarizing key according to claim 12 wherein the perimeter is generally pear-shaped.

15. (Original) An electrical connector system comprising:

a first connector, the first connector including a housing, a first variable polarity member mounted to the housing, and a cam follower member mounted to the housing, the first polarity member being configured to be placed in any of a plurality of polarities; and

a second connector, the second connector including a housing, a second variable polarity member mounted to the housing, and a cam member mounted to the housing, the second polarity member being configured to be placed in any of a plurality of polarities, the polarities of the second polarity member being respectively complementary to the polarities of the first polarity member, and the cam member being movable between an open position and a closed position; and

wherein the cam member is configured to be operably arranged with the cam follower member such that moving the cam member from the open position to the closed position interconnects the receptacle and the plug.

16. (Original) The electrical connector system according to claim 15 wherein the first connector comprises a receptacle.

17. (Original) The electrical connector system according to claim 16 wherein the receptacle further includes a grounding spring.

18. (Original) The electrical connector system according to claim 17 wherein the grounding spring includes a plurality of hertz bumps.

19. (Original) The electrical connector system according to claim 16 wherein the receptacle includes a flange.

20. (Original) The electrical connector system according to claim 19 wherein the flange includes a first end having a pair of mounting holes and a second end having a pair of mounting slots.

21. (Original) The electrical connector system according to claim 19 wherein the receptacle further includes a grounding spring, the grounding spring being mounted to the flange.

22. (Original) The electrical connector system according to claim 15 wherein the first connector comprises a size 2 housing, and the second connector comprises a size 2 housing.

23. (Original) The electrical connector system according to claim 15 wherein the first connector comprises a size 1 housing, and the second connector comprises a size 1 housing.

24. (Original) The electrical connector system according to claim 15 wherein the first connector comprises a size 4 housing, and the second connector comprises a size 2 housing.

25. (Original) The electrical connector system according to claim 24 further comprising:

a third connector, the third connector comprising a size 2 housing.

26. (Original) The electrical connector system according to claim 15 wherein the cam follower member comprises a bayonet pin.

27. (Original) The electrical connector system according to claim 15 wherein the cam member comprises a coupler.

28. (Original) The electrical connector system according to claim 26 wherein the cam member comprises a coupler.

29. (Original) The electrical connector system according to claim 15 further comprising:

a panel, the panel including a cutout configured to accommodate the housing of the first connector such that the first connector can be front mounted to the panel or rear mounted to the panel.

30. (Original) The electrical connector system according to claim 15 further comprising:

a panel, the panel including a cutout configured to accommodate the housing of the first connector; and

a retaining clip, the retaining clip configured to fit within the cutout of the panel, and the retaining clip being engageable with the cutout and the first connector such that the first connector can be push mounted to the panel.

31. (Original) The electrical connector system according to claim 15 further comprising:

a pair of rails, the rails being in substantially parallel spaced relation to each other, each rail including a plurality of mounting holes; and

wherein the first connector is configured such that the first connector can be mounted to the rails.

32. (Original) The electrical connector system according to claim 15 wherein the housing of the first connector includes a groove, and the electrical connector system further comprises a first backshell, the first backshell including a rib, the rib of the first backshell being retained in the groove.

33. (Original) The electrical connector system according to claim 32 wherein the backshell is a clamp bar type.

34. (Original) The electrical connector system according to claim 32 wherein the backshell is a strain-relief type.

35. (Original) The electrical connector system according to claim 32 wherein the backshell is a shield termination type.

36. (Original) The electrical connector system according to claim 32 wherein the backshell is a shrouded shield termination type.

37. (Original) The electrical connector system according to claim 36 wherein the shrouded shield termination backshell includes a shrouded portion having a generally rectangular aperture.

38. (Original) The electrical connector system according to claim 36 wherein the shrouded shield termination backshell includes a shrouded portion having a generally circular aperture.

39. (Original) The electrical connector system according to claim 32 further comprising a second backshell, the second backshell including a rib, the rib of the second backshell being retained in the groove, and the second backshell being mounted to the first backshell.

40. (Original) A method for interconnecting a plug and a receptacle comprising:

providing a first polarity member, the first polarity member being configured to be placed in any of a plurality of polarities  
mounting the first polarity member to the plug in a first polarity;  
providing a second polarity member, the second polarity member being configured to be placed in any of a plurality of polarities  
mounting the second polarity member to the receptacle in a second polarity, the second polarity being complementary to the first polarity;  
engaging a cam follower with a cam member, the cam follower mounted to the receptacle, and the cam member mounted to the plug; and  
moving the cam member from an open position to a closed position.

41. (Original) The method according to claim 40 wherein the cam follower member comprises a bayonet pin.

42. (Original) The method according to claim 40 wherein the cam member comprises a coupler.

43. (Original) The method according to claim 41 wherein the cam member comprises a coupler.

44. (Original) The method according to claim 40 further comprising:  
front mounting the receptacle to a panel.

45. (Original) The method according to claim 40 further comprising:  
rear mounting the receptacle to a panel.

46. (Original) The method according to claim 40 further comprising:  
push mounting the receptacle to a panel with a retaining clip.

47. (Original) The method according to claim 40 further comprising:  
mounting the receptacle to a pair of rails.

48. (Original) A removable insert for retaining at least one electrical contact, the insert being configured to be inserted into an electrical component, the insert comprising:

a body, the body including a hole for accommodating the contact;  
a grommet mounted to the body for sealingly engaging the contact, the grommet including a hole for accommodating the contact; and  
a resiliently flexible locking tab projecting from the body.

49. (Original) The insert according to claim 48 further comprising:  
a peripheral seal disposed around the body for providing a seal between the insert and the electrical component.

50. (Original) The insert according to claim 48 further comprising:  
a second resiliently flexible locking tab projecting from the body.

51. (Original) The insert according to claim 48 wherein the locking tab includes a notch for operably receiving a tool to deflect the locking tab.

52. (Original) The insert according to claim 51 wherein the notch includes a chamfered end.

53. (Original) The insert according to claim 48 wherein the body includes a groove, and the peripheral seal is disposed in the groove.

54. (Original) The insert according to claim 48 wherein the body includes a plurality of holes, the grommet includes a corresponding plurality of holes, the holes of the grommet and the holes of the body being aligned respectively with each other and being arranged in a plurality of columns.

55. (Original) The insert according to claim 54 wherein the grommet includes a plurality of indicia to indicate respectively a corresponding plurality of the columns.

56. (Original) The insert according to claim 55 wherein each indicium comprises a color.

57. (Original) The insert according to claim 55 wherein each alternate column includes the indicium.

58. (Original) The insert according to claim 56 wherein each alternate column includes the indicium.

59. (Original) The insert according to claim 54 wherein the grommet includes a plurality of indicia, the indicia respectively disposed to indicate a corresponding plurality of the holes.

60. (Original) The insert according to claim 54 wherein the holes of the grommet and the holes of the body are arranged in a plurality of columns, and the holes of each column of the body are electrically interconnected to each other.

61. (Original) The insert according to claim 60 wherein the grommet includes a plurality of indicia to indicate the holes of each column are electrically interconnected together.

62. (Original) The insert according to claim 61 wherein the indicia includes a plurality of lines connecting the holes of each column.

63. (Original) The insert according to claim 55 wherein the indicia comprise numbers.

64. (Original) The insert according to claim 48 further comprising:

an interfacial seal mounted to the body and disposed such that the interfacial seal sealingly contacts a second insert when the insert and the second insert are mated.

65. (Original) An electrical connector comprising:  
a housing, the housing including a cavity, and  
a removable insert, the insert configured to be removably retained in the cavity, the insert including a chamber for retaining a contact, the insert including a peripheral seal, and the peripheral seal engaging the cavity of the housing to provide a seal between the insert and the housing when the removable insert is retained in the cavity.

66. (Original) An electrical connector comprising:  
a housing, the housing including a cavity, and  
a removable insert, the insert including a chamber for retaining a contact, the insert including a locking member, the locking member being configured to releasably engage the cavity, the locking member and the cavity cooperating when the locking member releasably engages the cavity to define a gap, the gap being sized such that a tool can be inserted in the gap to engage the locking member, thereby releasing the insert from the housing.

67. (Original) The electrical connector according to claim 66 wherein the locking member includes a notch for operably receiving the tool to deflect the locking member.

68. (Original) The electrical connector according to claim 67 wherein the notch includes a chamfered end.

69. (Original) A removable insert for insertion into an electrical component comprising:  
a body, the body including a plurality of holes for accommodating a plurality of contacts of a particular size; and

a grommet mounted to the body for sealingly engaging the contacts, the grommet including a plurality of holes for accommodating the contacts, and the grommet including an indicium to identify the particular size of contact which the insert can accommodate.

70. (Original) The insert according to claim 69 wherein the indicium is a color.

71. (Original) The insert according to claim 70 wherein the indicium is red to indicate 8 or 20 gauge contacts.

72. (Original) The insert according to claim 70 wherein the indicium is yellow to indicate 12 gauge contacts.

73. (Original) The insert according to claim 70 wherein the indicium is blue to indicate 16 gauge contacts.

74. (Original) The insert according to claim 70 wherein the indicium is violet to indicate optical fiber contacts.

75. (Original) The insert according to claim 70 wherein the indicium is green to indicate 22 gauge contacts.

76. (Original) A method for interconnecting a plug having a window and a receptacle having a window, the method comprising:  
providing a first polarity member, the first polarity member being configured to be placed in any of a plurality of orientations to provide a corresponding number of polarities, the first polarity member including a plurality of indicia with each indicium corresponding to a different polarity;  
removably mounting the first polarity member to the plug in a first orientation such that a single indicium of the first polarity member is visible through the window;

providing a second polarity member, the second polarity member being configured to be placed in any of a plurality of orientations to provide a corresponding number of polarities, the polarities of the second polarity member being respectively complementary to the polarities of the first polarity member, the second polarity member including a plurality of indicia with each indicium corresponding to a different polarity; and  
removably mounting the second polarity member to the receptacle in a second orientation such that a single indicium of the second polarity member is visible through the window;, the second orientation being complementary to the first orientation.

77. (Original) An electrical connector system comprising:  
a receptacle, the receptacle including a cam follower member; and  
a plug, the plug being configured to be interconnected with the receptacle, the plug including a cam member and a wall surface, the cam member being movable between an open position and an engaged position, the cam member being configured to be operably arranged with the cam follower member such that moving the cam member from the open position to the engaged position interconnects the receptacle and the plug, the wall surface including a window, and the window disposed such that when the cam member is in the engaged position, the cam follower member is visible through the window.

78. (Original) The electrical connector system according to claim 77 wherein the cam follower member comprises a bayonet pin.

79. (Original) The electrical connector system according to claim 77 wherein the cam member comprises a coupler.

80. (Original) The electrical connector system according to claim 79 wherein the cam follower member comprises a bayonet pin.

81. (Original) The electrical connector system according to claim 77 wherein the wall surface comprises a cover plate.

82. (Original) The electrical connector system according to claim 79 wherein the coupler comprises a pair of arms, each arm including a slot, each slot including a first end and a second end, and the plug further comprising a pair of retaining pins, the retaining pins mounted to the plug housing and respectively disposed in the slots, the retaining pins disposed such that when the retaining pins are at the first ends, the coupler is in the open position, and when the retaining pins are at the second ends, the coupler is in the engaged position.

83. (Original) The electrical connector system according to claim 82 wherein both the first ends and the second ends of the slots include a detent for locking the coupler in the open position and the engaged position, respectively.

84. (Original) An electrical connector system comprising:  
a receptacle, the receptacle including a cam follower member; and  
a plug, the plug being configured to be interconnected with the receptacle, the plug including a coupler and a wall surface, the coupler being movable between an open position and an engaged position, the coupler being configured to be operably arranged with the cam follower member such that moving the coupler from the open position to the engaged position interconnects the receptacle and the plug, the coupler including an arms, the arm including a first indicator strip, the first indicator strip being disposed such that when the coupler is in the open position, the first indicator strip is visible, and when the coupler is in the engaged position, the first indicator strip is obscured from view by the wall surface.

85. (Original) The electrical connector system according to claim 84 wherein the arm of the coupler further includes a second indicator strip, the second indicator strip being disposed such that when the coupler is in the open position, the second indicator strip is

visible and when the coupler is in the engaged position, the second indicator strip is obscured from view by the wall surface.

86. (Original) The electrical connector system according to claim 84 wherein the arm of the coupler further includes a third indicator strip, the third indicator strip being disposed such that when the coupler is in the open position, the third indicator strip is obscured from view by the wall surface and when the coupler is in the engaged position, the third indicator strip is visible.

87. (Original) The electrical connector system according to claim 85 wherein the arm of the coupler further includes a third indicator strip, the third indicator strip being disposed such that when the coupler is in the open position, the third indicator strip is obscured from view by the wall surface and when the coupler is in the engaged position, the third indicator strip is visible.

88. (Original) A strain-relief backshell comprising:

a generally U-shaped base, the base including a pair of mounting ears, an outer surface, an inner surface, and a rib, the rib being disposed on the inner surface; and a frame, the frame includes a plurality of fingers for providing strain relief, wherein at least two of the fingers are disposed at different orientations along the frame.

89. (Original) An electrical connector system comprising:

a receptacle, the receptacle including a housing, a first removable insert, a first polarity member, a first contact, and a cam follower member, the housing configured to receive the first removable insert, the first insert including a chamber for retaining the first contact, and the first polarity member being configured to be placed in any of a plurality of orientations to provide a corresponding number of polarities; and

a plug, the plug including a housing, a second removable insert, a second polarity member, a second contact, and a cam member, the housing configured to receive the second removable insert, the second insert including a chamber for retaining the second contact, the second polarity member being configured to

be placed in any of a plurality of orientations to provide a corresponding number of polarities, the polarities of the second polarity member being respectively complementary to the polarities of the first polarity member, and the cam member being movable between an open position and a closed position;

wherein, the receptacle is configured to be interconnected with the plug such that the first contact is electrically interconnected with the second contact and that the first polarity member can be mated with the second polarity member when the first polarity member is placed in a complementary polarity; and  
wherein the cam member is configured to be operably arranged with the cam follower member such that moving the cam member from the open position to the closed position interconnects the receptacle and the plug.

90. (Original) A backshell system for mounting to an electrical connector, the backshell system comprising:

a first backshell, the first backshell being a type selected from the group consisting of a clamp backshell, a strain-relief backshell, and a shield termination backshell; and

a second backshell, the second backshell being a type selected from the group consisting of a clamp backshell, a strain-relief backshell, and a shield termination backshell; and

wherein the first backshell and the second backshell are mountable to the electrical connector.

91. (Original) The backshell system according to claim 90 wherein the electrical connector includes a groove, the first backshell includes a rib, and the second backshell includes a rib, and the ribs of the backshells retentively engage the groove of the electrical connector when the backshells are mounted to the connector.

92. (Original) The backshell system according to claim 90 wherein the first backshell includes a mounting hole, the second backshell includes a mounting hole, and the

mounting hole of the first backshell and the mounting hole of the second backshell are configured to be aligned for connecting the first backshell to the second backshell such that the backshells are mounted to the electrical connector.

93. (Original) The backshell system according to claim 90 wherein the second backshell is a type different than the type of the first backshell.

94. (Original) A shield termination backshell comprising:  
a base, the base including a mounting ear, an outer surface, and an inner surface;  
a contact cavity, the contact cavity being configured to retain an electrical contact;  
and  
a grounding spring, the grounding spring configured to engage the electrical contact retained in the contact cavity to provide an electrical connection between the contact and ground.

95. (Original) The shield termination backshell according to claim 94 wherein the base includes a rib, the rib being disposed on the inner surface.

96. (Original) The shield termination backshell according to claim 94 further comprising an insert.

97. (Original) The shield termination backshell according to claim 94 wherein the base is generally U-shaped.

98. (Original) The shield termination backshell according to claim 94 wherein the base includes a shroud portion.

99. (Original) The shield termination backshell according to claim 98 further comprising an insert, wherein the shroud portion is configured to present a flush appearance with the insert.

100. (Original) The shield termination backshell according to claim 98 wherein the shroud portion defines an enclosure portion.

101. (Original) The shield termination backshell according to claim 100 wherein the shroud portion includes a generally rectangular aperture.

102. (Original) The shield termination backshell according to claim 100 wherein the shroud portion includes a generally semi-circular aperture.

103. (Original) The shield termination backshell according to claim 94 wherein the contact cavity includes a retaining portion for retaining the contact.

104. (Original) The shield termination backshell according to claim 103 wherein the retaining portion includes a projection having a ramped surface and a shoulder.

105. (Original) The shield termination backshell according to claim 94 wherein the grounding spring comprises a first layer and a second layer.

106. (Original) The shield termination backshell according to claim 94 wherein the grounding spring comprises a tab having a hertzian bump.

107. (Original) A mounting system comprising:  
an electrical connector, the electrical connector including a generally rectangular housing having a cavity for retaining an insert and a flange, the insert configured to retain a contact; and  
a panel, the panel including a cutout configured to accommodate the housing of the first connector; and  
wherein the flange is configured such that the electrical connector can be mounted to the panel in a manner selected from the group consisting of front mounted, rear mounted, and push mounted.

108. (Original) The mounting system according to claim 107 wherein the flange of the housing is generally rectangular.

109. (Original) The mounting system according to claim 107 further comprising a retaining clip for push mounting the electrical connector.

110. (Original) A mounting system comprising:  
an electrical connector, the electrical connector including a generally rectangular housing having a cavity for retaining an insert and a flange, the insert configured to retain a contact; and  
a pair of rails, the rails being disposed in substantially parallel relation to each other a first distance; and  
wherein the first distance is such that the flange of the electrical connector can be mounted to the rails.

111. (Original) The mounting system according to claim 110 wherein the flange of the housing is generally rectangular.

112. (Original) A modular electrical connector system comprising:  
a first housing, the first housing having a first number of cavities;  
a second housing, the second housing having a second number of cavities, each cavity of the second housing being similar to each cavity of the first housing;  
a removable insert, the removable insert being configured to be inserted into any one of the cavities of the first housing and the second housing.

113. (Original) The modular electrical connector system according to claim 112 wherein the first number of cavities is selected from the group consisting of one, two, and four, and the second number of cavities is selected from the group consisting of one, two, and four.

114. (Original) The modular electrical connector system according to claim 112 wherein the first number of cavities is different than the second number of cavities.

115. (Original) The modular electrical connector system according to claim 113 wherein the first number of cavities is different than the second number of cavities.

116. (Original) The modular electrical connector system according to claim 112 wherein the removable insert includes a peripheral seal to provide a seal between the removable insert and the cavity into which the removable insert is installed.

117. (Original) The modular electrical connector system according to claim 112 wherein the removable insert includes an interfacial seal.

118. (Original) The modular electrical connector system according to claim 112 wherein the removable insert includes a chamber configured to retain a contact and a locking tab to retentively engage the cavity into which the removable insert is inserted.

119. (Original) The modular electrical connector system according to claim 112 wherein the removable insert is selected from the group consisting of a 22 gauge pin insert, a 20 gauge pin insert, a 16 gauge pin insert, a 12 gauge pin insert, an 8 gauge pin insert, a fiber optic pin insert, a coaxial pin insert, a 22 gauge bussed pin insert, a 20 gauge bussed pin insert, a blank pin insert, a 22 gauge socket insert, a 20 gauge socket insert, a 16 gauge socket insert, a 12 gauge socket insert, an 8 gauge socket insert, a fiber optic socket insert, a coaxial socket insert, a 22 gauge bussed socket insert, a 20 gauge bussed socket insert, and a blank socket insert.

120. (Original) The modular electrical connector system according to claim 112 wherein the removable insert includes a chamber configured to retain a contact, and the contact is selected from the group consisting of a 22 gauge pin contact, a 20 gauge pin contact, a 16 gauge pin contact, a 12 gauge pin contact, an 8 gauge pin contact, a fiber optic male contact, a coaxial male contact, a 22 gauge socket contact, a 20 gauge socket contact, a 16 gauge

socket contact, a 12 gauge socket contact, an 8 gauge socket contact, a fiber optic socket contact, and a coaxial female contact

121. (Original) The modular electrical connector system according to claim 112 wherein the removable insert comprises a plurality of chambers, each chamber configured to retain a contact.

122. (Original) A retaining clip for mounting an electrical connector to a panel having a cutout, the retaining clip comprising:

a frame; and

a pair of resiliently flexible sidewalls depending from the frame, each sidewall including a panel latching member and a connector support;  
wherein the latching members are configured to engage the cutout to removably attach the retaining clip to the panel, and the frame and connector supports are configured to retain the connector.

123. (Original) The retaining clip according to claim 122 wherein the panel includes a mating surface, each latching member includes a tab, each tab configured to extend from the mating surface of the panel when the retaining clip is removably attached to the panel.